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MECHANICS.

No. I.

SELF-ADJUSTING STEP-LADDER FOR WHARFS.

The SILVER ISIS MEDAL *was presented to Mr. P.* LUCAS, *of* 19 *Hyde Park Gardens, for a Self-Adjusting Step-Ladder for Wharfs.*

A MODEL of Mr. Lucas's self-adjusting step-ladder for wharfs, quays, &c., to or from which persons may conveniently ascend or descend, by a series of steps, or walk along a plane surface, whether the vessel be either above, below, or on a level with the wharf, is placed in the Society's Repository. The railed plank in present use is in general, when the tide is low, very inconvenient to ascend; so much so, that an upper and a lower quay, communicating with each other by fixed steps, are always necessary to lessen the acclivity of the inclined plane, but which lower quay can be entirely dispensed with by using the adjusting ladder.

It may also be advantageously applied in place of the small ladders usually attached to ships, the height of which, with regard to the wharf, must be constantly altering, from the variation of the tide and the weight contained in the vessel.

The construction is as follows:—A series of steps of

Fig. 1.

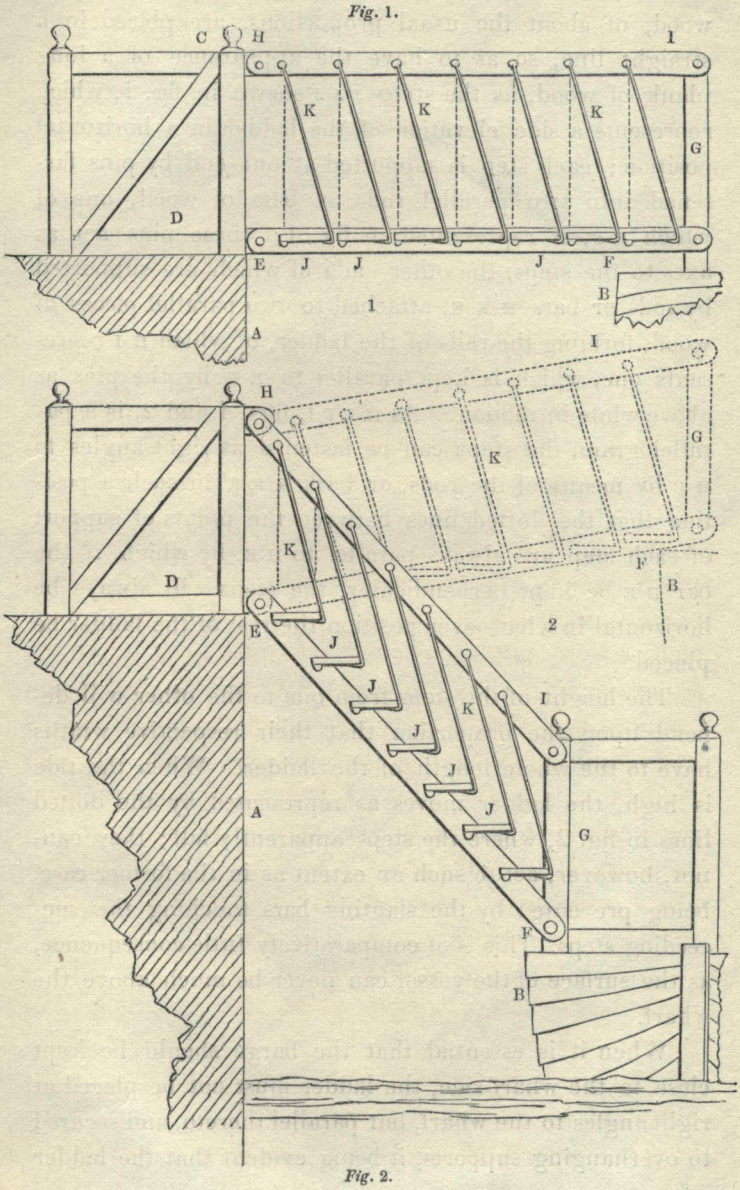

Fig. 2.

wood, of about the usual proportions, are placed in a straight line, so as to have the appearance of a long plank of wood, as the steps J J J shewn in fig. 1, which represents a side elevation of the ladder in a horizontal position; each step is supported at one end by pins fastened into two parallel rods or bars of wood, one of which E F, is represented in fig. 1; these pins act as axes to the steps, the other ends of which are supported by rods or bars K K K, attached to two parallel pieces of wood, forming the rails of the ladder, of which H I represents one, which is kept parallel to E F by the pins as above while in motion. As H E F I, figs. 1 and 2, is a parallelogram, the steps can be fastened at right angles to H E by means of the rods, or bars K K K in such a position that the dotted lines between the points of support of each step are always parallel to H E, by which, if the bar H E be kept perpendicular, the steps will always be horizontal in whatsoever position the rest of the ladder be placed.

The height of the steps from one to the other will depend upon the proportion that their respective widths have to the whole length of the ladder. When the tide is high, the ladder moves as represented by the dotted lines in fig. 2, where the steps apparently fall; they cannot, however, act to such an extent as in the former case, being prevented by the slanting bars touching the succeeding steps. This is of comparatively little consequence, as the surface of the vessel can never be much above the wharf.

When it is essential that the barge should be kept close to the wharf-side, the ladder must not be placed at right angles to the wharf, but parallel thereto, and secured to overhanging supports, it being evident that the ladder

will take up much more room in the former than in the latter position, of which the width of the barge will not always admit. The model sent is applicable in either way.

PHILIP LUCAS, Jun.

Oct. 12, 1843.

No. II.

CHIMES FOR HOUSE-CLOCKS.

The SILVER ISIS MEDAL was presented to A. E. BRAE, Esq. of Leeds, for his improved Chimes for House-Clocks.

THERE are few persons so ignorant of the internal construction of a common house-clock as not to know that when it strikes the hours it does so by the aid of a distinct and separate train of wheel-work, the weight, or spring of which requires to be wound up in the same manner as that by which the hands are moved round the dial. But, owing to the comparative rareness with which clocks that chime the quarters are seen, it is by no means so well, or so generally known, that when *they* do so, it is by the aid of a *third* train of wheel-work distinct and separate from the two former, having, like them, a separate weight, or spring, requiring to be wound up at intervals.

It is not easy, without entering into a minute description of the mechanism that regulates the striking part of a clock, to give a familiar reason why this third train should be necessary in order to strike the quarters; but, since it is extremely desirable that the nature of the difficulty should be understood in order that the improve-